NC-AD300D
Serial
Signaling Converter
User Manual
For PbxD

Foreword

The purpose of this manual is to supply operating, set up and configure with the information needed to properly and quickly set up and configure the NiceUC's NC-AD300D Signaling converter.

We had made every effort to ensure that the information in this manual is accurate and adequate.

If you use this manual when you encounter any problems and have any good suggestions , please contact us:

ShenZhen NiceUC communication Tech co., Ltd

Room 1401, YiZhe Building, YuQuan Rd, NanShan District,

ShenZhen City, GuangDong , China

Tel:86-755-26722761

Fax:86-755-26526970

Email: sales@niceuc.com

Website: http://www.nicecomm.com.cn
http://www.niceuc.com

Contents

www.nicecomm.com.cn   www.niceuc.com

Chapter 1　Overview

1.1 Brief introduction

NC-AD300D signaling converter ,use modular structure,real-time embedded operating system,full switching,low power consumption and high reliability.

1.2 Main specialfication

➢ Maximum support 16E1 ,16 SS7 links

➢ Signaling support Isdn PRI,Q.Sig,Cas,R2,E&M,SS7,V5

➢ SS7 support dual-link load sharing and support group links

➢ SS7 support a variety of connectivity ,such as from Network and PCM

➢ Support SS7 Signaling gateway(to be on the SS7 connected to the Network from the PCM)

➢ Intelligent routing ,according to time slot group,calling party and called party can be used as the routing condion

➢ Multi-number transformation ,slot can be grouped ,calling party and called party can be any changed

➢ Call restrictions, support for blacklists and whitelists

➢ Virtual Calling, Caller ID can be a fixed rule change

➢ Support the playback sound, provide simple voice process and support calling party and called party certification

➢ Provides detail call record

➢ Provides convenient monitor software

➢ Provides CTI program interface

Chapter 2　Hardware construction

Description :

Nice AD-300D with 1U- high chassis, very easy to install in 19-inch cabinet. There are two versions, just behind the interface is different from other functions are the same. V8 version of the E1 interface CC4 coaxial head, V9 and V10 of the E1 interface RJ45 crystal head.

internal structure of the diagram is as fllows:
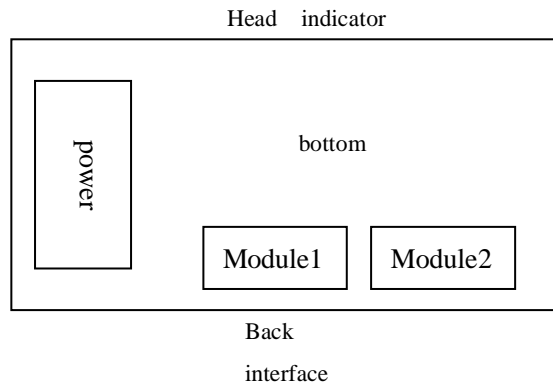
bottom up to 8 E1,it can be added two modules,the maxium of a simple module is 4E1.

2.1 Indicator

Front panel as shown below：

Light fllowed:

Run   Link   Speed   D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16

Indicator define as fllows:

Description	Direct object	Indicator status change					
		Green			**Red**		
		on	**of**	**blink**	**on**	**of**	**blink**
Run	Equipment	Normal	Abnormal	/	Abnormal	Fault	Normal
Link	Network	Normal	Fault	Data transfer	/	/	/
Speed	Net speed	100M	10M	/	/	/	/
D1	PCM0	Link OK	No link or link failure	/	Lose synchronous	synchronous	Warning from Other side
D2	PCM1						
D3	PCM2						
D4	PCM3						
D5	PCM4						
D6	PCM5						

D7	PCM6						
D8	PCM7						
D9	PCM8						
D10	PCM9						
D11	PCM10						
D12	PCM11						
D13	PCM12						
D14	PCM13						
D15	PCM14						
D16	PCM15						

Note:The link indicator is relationship with configuration,it's take effect when configuration to.

Tips:You can dertimine whether the E1 connection ,send and recive is correct according to sync indicator.

2.2 Interface

Interface to the back of the device:

The back of V8 version as shown：

| 220V Power interface | switch | -48V Power interface （reserved） | Reset button | PCM recived | PCM transfer | Console | Eth |
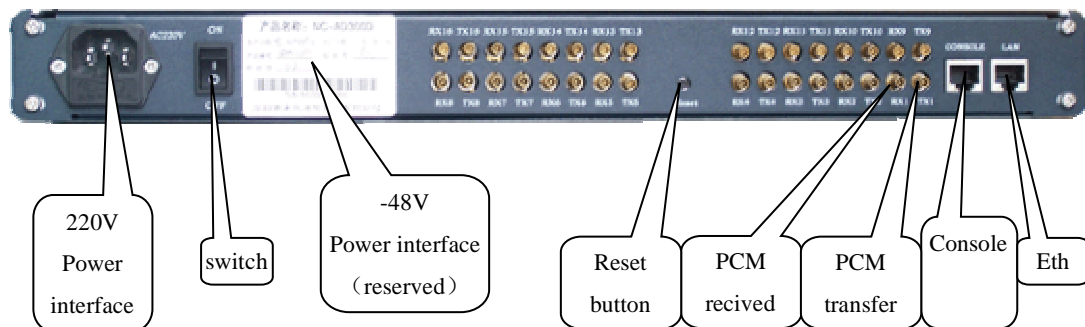
PCM sequencing in the following tables:

PCM15		PCM14		PCM13		PCM12		PCM11		PCM10		PCM9		PCM8	
RX16	TX16	RX15	TX15	RX14	TX14	RX13	TX13	RX12	TX12	RX11	TX11	RX10	TX10	RX9	TX9
PCM7		PCM6		PCM5		PCM4		PCM3		PCM2		PCM1		PCM0	
RX8	TX8	RX7	TX7	RX6	TX6	RX5	TX5	RX4	TX4	RX3	TX3	RX2	TX2	RX1	TX1

The back of V9 or V10 versions as shown:

www.nicecomm.com.cn   www.niceuc.com

NC-AD300D Manual
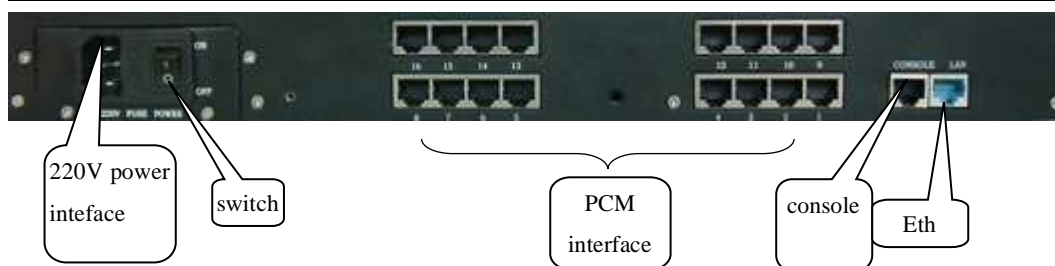
PCM RJ45 interface switch coax sequence:

RJ45 line sequence	1	2	4	5
BNC line sequence	out(ring)	inner (tip)	out(ring)	inner(tip)
	RX		TX	

The two versions of the PCM interface are different from others versions. othes are the same.

Power: provides 220V or -48V on-demond,

PCM interface: provide the corresponding number on-demond, and it only support

E1 currently.

Console and ethernet port : to be used as configure and debugging .with RJ45 connector.

And ethrnet port is a 10/100 Base-T Ethernet interface,support IEEE802.3

Reset button: can be used to reset device.

E1 is the ITU-T developed by the European Association of Postal and Telecommunications (CEPT) digital transmission system named after a group of (ie, PCM30) standard, from 32 64kbps way through the words of the PCM time-multiplexed to form, its transmission rate is 2.048Mbps . Usually 30, then road transport of voice and other user information, the other two telephone channels as the system overhead, transmission synchronization code, signaling yards and other ancillary signals. E1 interface of the physical and electrical characteristics comply with the G.703 standard of CCITT.

Chapter 3   Installing Equipment

3.1 Pre-installation preparation

3.1.1 Device Accessories

Accessories list			
accessories	**number**	**unit**	**note**
Power line	1	article	
console line	1	article	
ethernet line	1	article	Crossover cable

8

www.nicecomm.com.cn   www.niceuc.com

| E1 line | 2 | pair | Number according to demand |
| | | | Different interface,different E1 line |
| data CD | 1 | piece | |

3.1.2 tools

Essential: Screwdriver, Crystal head pressure pliers,Wire cutter.
Optional:Multimeter,Electric iron,Solder wire,Knife,Needle nose plier,Etc.

3.1.3 Cable

Console line: End of RJ45 crystal head,access device.and the other side of RS232 DB Female head,then link to computer.

The realationship from console RJ45 to RS232.
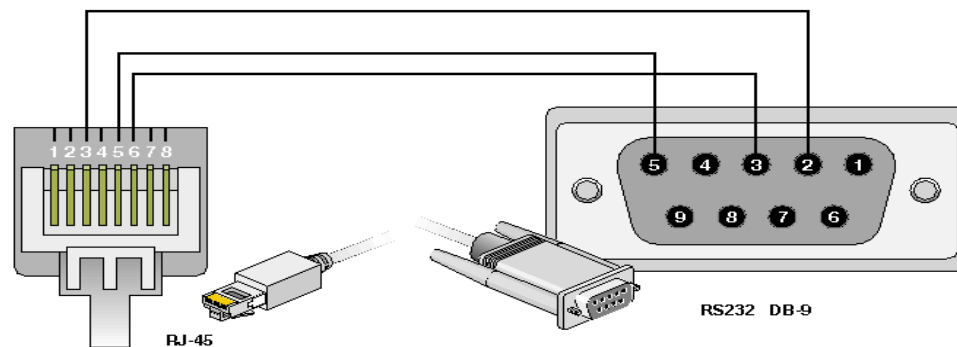
There are two kinds of network cable ,one is Crossover cable the other is straight-through. If device connect to computer ,please use Crossover cable.If connect to HUB,use Straight-Through cable.

Network cable at both end of RJ45 line sequence as shown:

cross

cable

straight

straight

www.nicecomm.com.cn   www.niceuc.com
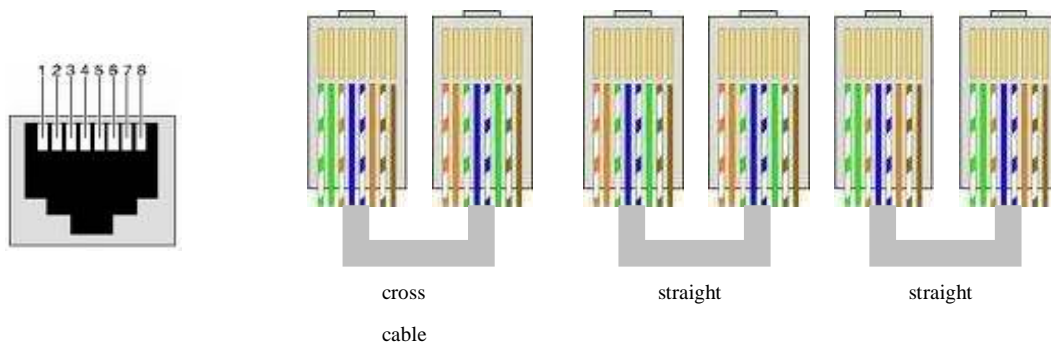
E1 line connector CC4 as shown:

E1 line interface of RJ45 as shown:
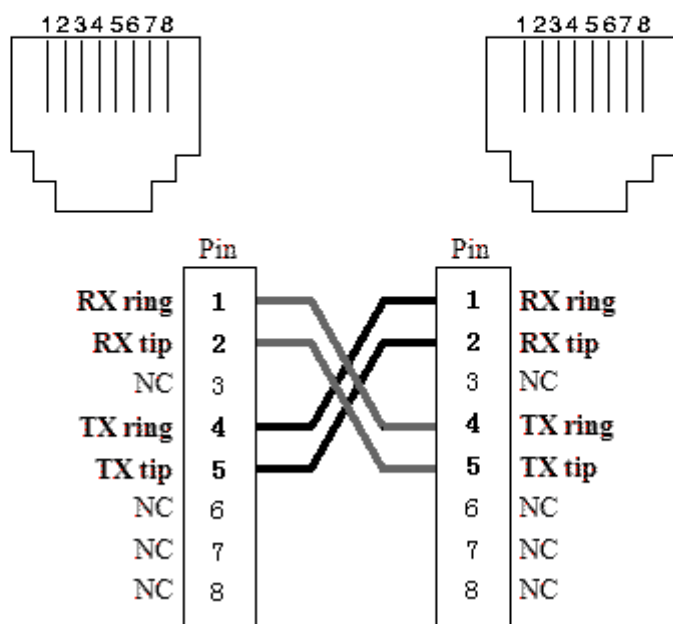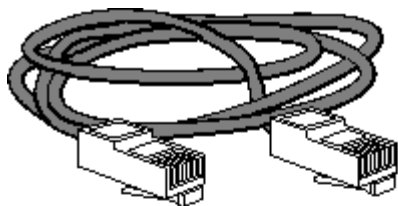
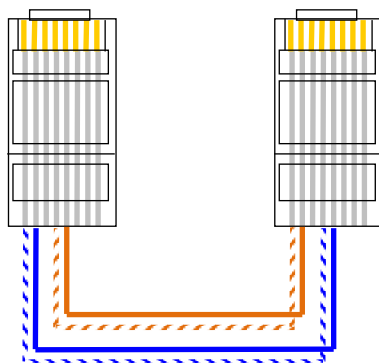E1 line ,usually config RJ45 transfer line BNC,if the opposite end of the side is RJ45.You can DIY it according the fllowing diagram:

www.nicecomm.com.cn   www.niceuc.com

3.1.4 Enviroment

a) Power Requirements:

Voltage should be constant, the electric current should be sufficient (to meet the nees OK), Power can't have too much clutter and interference.

Power type	UPS or Secondary power supply	
Nominal voltage	220V AC	－48V DC
Voltage input range	130v~250v normal	－48V±15％ ensure indicators，－57V～－40V normal work

b) Grounding Requirements

The engine room must have good grounding,and have separate protected. room of the lighting protection system should be a separate system. its grounding system and used as a reference to the power system and protected room is not shared.

c) Temperature and Humidity

To ensure the device work normally and to extend the service life ,engine room needs to maintain a certain temperature and humidity, If the room humidity is too high for a long period, it could easily lead to bad insulation or insulation leakage, and also occurs materials, mechanical properties change in such phenomena as corrosion of metal parts; if the relative humidity is too low, causing shrinkage of insulating gasket will screw loose, in the dry weather conditions, but also prone to static electricity, against device electronics; if the temperature is too high will accelerate the aging process of insulating materials, so that the reliability of the device greatly reduced, seriously affecting their life.

Temperature			Humidity	
Transport and storage	Long-term work conditions	Short-term work conditions	Long-term work conditions	Short-term work conditions
－20℃～60℃	0℃～40℃	－5℃～45℃	5%～85%	5%～90%
Description	The engine room temperature and humidity measurement refers to the equipment rack before and after the failed to protect boards from the floors above 1.5m and 0.4m from the equipment rack at the front of the measured values.			
	Short-term work refers to device work conditions, working continuously for less than 24 hours and an annual aggregate of not more than 15 days			

d) Others

The major harzard of device running safty is dust, that indoor dust atthed to the body ,leads to electrostatic adsorption, the metal connectors or metal contacts being exposed, not only will affect the service life, but also easily lead to communication failures. When the indoor relative humidity low, the easier to produce this electrostatic adsorption. Therefore, dust needs to be done.

Despite the anti-lightning equipment has done a lot of considerations, but also taken the necessary design and measures, but the lightning intensity over a certain area, it is still possible to cause damage to equipment. In order to achieve a better lightning effectsit is recommended users:

✧ Ensure the equipment chassis of protected areas with the protection of ground to maintain good contact with the earth

.

✧ To enhance the power of the anti-lighting effect，we can consider the input front-end to join in the power supply arrester, so that power can be greatly enhanced the ability of anti-lightning strike. To enhance the power of the anti-lightning effect

✧ For the device itself by the user interface to connect to the outdoor outlet signals, such as telephone lines, E1 lines, in order to achieve better anti-lightning effect, users may wish to consider the input of additional signal lines dedicated lightning devices

And need to note that electromagnetic interference, with particular attention to anti-static. when the observation or the transfer of the demolition of the circuit board, please contact the circuit board by hand the outer edges to avoid touching the circuit board by hand directly to components.

3.2 setup step

At frist please install device and fixed , and then connect the power cord, turn the power switch, observation equipment, lights are normal. To normal, to connect serial cable, network cable, and configure the operating parameters. Configuration is completed, connecting E1 lines. E1 line to connect when you should pay attention to the corresponding synchronous receive light, if the red light, try to connect the TX and RX pairs of words, the red light does not shine can be.

3.3 Notes

A. Ground must have good grounding resistance should be less than 5 ohms, preferably less than 0.5 ohms.

B. Docking cable, the interface card bits to be solid, appropriate driving force can not fall.

C.Pull line, pay attention to circlip, must not use brute force, may cause damage to cable connectors.

Chapter 4   Basic configure

NC-AD300D can be configured by two means.

1.Through the console port to connect terminal or PC running terminal emulation software.

2.Through Telnet program on the Ethernet.
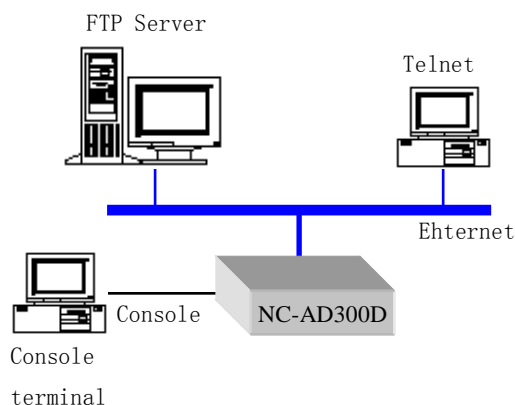
But before use the Telnet,we need to know IP address of the device, and ensure the internet smoothly.

4.1 Terminal connection

We usually use PC to debugging device,when connecting to device console port,it needs to running a simulation software on PC, In Windows system, the commonly used "Super Terminal." you can also use any other terminal software, recommended the use of SecureCRT.

Use of methods about "Super   Terminal" can be found in Appendix II or other materials

When use console port,terminal parameter configuration as shown:

Baud rate	115200
Data bits	8
Parity	None
Stop bits	1
Flow Control	None

Notes: Computer usually have two serial ports,COM1 and COM2,if it's out withUSB-Serial port, then may be COM3,COM4,COM5 etc.please confirm the choice of the port is correct。

It can be use Telnet service through Ethernet connection,in Windows system, point "Start" menu

Then choose "Run",and enter "address of IP" .you can also use other third-party software.such as

Secure CRT. Default of the telnet login name is admin ,password is nice.

Notes:at the same time ,console port and telnet connection only one,when the telnet Connect ,the Console port will be limited .only when the telnet exit, console port session can be restored . and through the Ethernet you may connect telnet only one,if you have connected a telnet. Re-connect will be limited.

13

4.2 Command States

There are two status for device, after a normal boot into the running.if the startup was interrupted, it will enter the Boot Status.

4.2.1 Boot states

When the device starts, if it has been connected to the terminal, you can see the start of the initialization information.

When the Press any key to stop auto-boot ... are prompted to wait for a few seconds delay, then press any key can stop the system start up and goes to boot state, and "[Boot]:" prompt will be shown.

In boot state, the equipment is waiting for the basic parameter change such as network parameters, boot methods.

4.2.2 Runing state

After start up finished the Equipment will go to running state, the prompt is "-> " "In PC terminal,you can view and modify the equipment operating parameters. Running a large number of functions under the command will be described later.

Note that all commands are case-sensitive.

4.2.3 from the boot state to running state

In boot state, after the prompt of **"[Boot]:"** enter **"x",** the equipment will be loaded from the Flash started into running state. If the FTP server has been configured, you can also type **"@",** the equipment will be start to load the file from FTP server.

4.3 Startup Parameters

4.3.1 Check boot parameters

If in the boot state, **"[Boot]:"** enter **"p"**

If in running state, **"->"** , enter" pboot "

boot parameter as follows:

boot device   :at   the system boot device name
unit number :0   Number of startup equipment unit
processor number:0   number of processors
host name:server   host name
file name:pbxd.   netloaded at startup from the network file names
inet on ethernet(e):192.168.16.254:FFFFFF00 device itself ipaddress:Subnet Mask
host inet (h):192.168.16.85   FTP host IP address of service
gateway inet (g):192.168.16.1   Ethernet Gateway IP adress
user (u) :pbx   connect FTP service user name
ftp password (pw):nice   connect FTP service password
flags (f):0x0   boot parameters
DeviceID :0x0   device ID

4.3.2 modify the boot parameters

If in boot state, **"[Boot]:"** type **"c"**
If in running state, **"->"** type **"cboot"**
Instructions:
Type the new value directly behind the old value, enter the changes, and then move to the next one.

Enter ".", Then delete the current content.

Enter "-" then return to the previous row to make changes.

Enter "Ctrl + D", exit change.

Directly press enter, will move to the next one.

boot device: at0 can not be changed

processor number: 0 can not be modified

host name: server can be freely modified

file name: pbxd.net according to the actual file name changes

inet on ethernet (e): 192.168.16.254: FFFFFF00

Modification form must be filled, if not the subnet mask, default taken 255.255.255.0

host inet (h): 192.168.16.85

Upgrade by FTP software to use, usually do not need to modify

gateway inet (g): 192.168.16.1

Intenet using to access the gateway address, depending on the network situation.

user (u): pbx according to practical situation

ftp password (pw): nice according to practical situation

flags (f): 0x0

Parameter values can be bitwise combination.

0x04 – go to the boot startup state, rather than running state.

0x08 - Quick Start to run state can not enter to boot state.

0x20 - Disable Telnet login account authentication.

0x40 - use DHCP to automatically obtain parameters.

0x80 - load the boot image from tftp.

0x100 - use proxy arp service.

0x200 --

0x400 – load from ftp to boot

0x800 - manually set the MAC address.

0x1000 - start the DHCP service.

0x2000 - use watchdog.

target name (tn): e3 can be freely modified

startup script (s): must be empty

other (o): must be empty

DeviceID: 0x0 can be freely modified

Note that the modification will be effect after re-start up.

4.4 Device IP Address

4.4.1 View IP address

A) ipconfig

Use the ipconfig command to query the device IP address for the primary user. Examples are as follows

-> Ipconfig

ip = 192.168.16.100: ffff0000

the device IP address "192.168.16.100", the subnet mask for the hexadecimal form converted to decimal as "255.255.0.0".

B) ifconfig

Use ifconfig command to query the device IP address for the primary user. Examples are as follows

-> Ifconfig

ip = 192.168.16.100: ffff0000

the device IP address "192.168.16.100", the subnet mask for the hexadecimal form converted to decimal as "255.255.0.0".

C) ifShow

Use ifShow command to view the device details of network parameters for advanced users.

Examples are as follows

-> IfShow

at (unit number 0):

Flags: (0x8063) UP BROADCAST MULTICAST ARP RUNNING

Type: ETHERNET_CSMACD

Internet address: 192.168.6.100

Broadcast address: 192.168.255.255

Netmask 0xffff0000 Subnetmask 0xffff0000

Internet address: 200.0.6.99

Broadcast address: 200.0.6.255

Netmask 0xffffff00 Subnetmask 0xffffff00

Ethernet address is 08:00:3 e: a8: 06:64

Metric is 0

Maximum Transfer Unit size is 1500

323677 octets received

213766 octets sent

4596 packets received

4066 packets sent

2387 non-unicast packets received

7 non-unicast packets sent

2209 unicast packets received

4059 unicast packets sent

0 input discards

0 input unknown protocols

0 input errors

0 output errors

0 collisions; 0 dropped

lo (unit number 0):

Flags: (0x8069) UP LOOPBACK MULTICAST ARP RUNNING

Type: SOFTWARE_LOOPBACK

Internet address: 127.0.0.1

Netmask 0xff000000 Subnetmask 0xff000000

Metric is 0

Maximum Transfer Unit size is 32768

```
0 packets received; 0 packets sent
0 multicast packets received
0 multicast packets sent
0 input errors; 0 output errors
0 collisions; 0 dropped
```

D) pboot

Use pboot command to view the basic parameters of the device. Examples are as follows

-> Pboot

boot device: at

unit number: 0

processor number: 0

host name: server

file name: pbxd.net

17

inet on ethernet (e): 192.168.16.254:FFFF0000

host inet (h): 192.168.16.5

user (u): pbx

ftp password (pw): nice

flags (f): 0x0

target name (tn): d

DeviceID: 0x0

The above example, "inet on ethernet (e):" is the device behind the IP address, and the ifconfig command to see to the format, the device IP address "192.168.16.254the subnet mask for the hexadecimal form of conversion into a decimal to "255.255.0.0".

4.4.2 modify the IP address

A) cboot

Use cboot command to modify the device's IP address, operating process is as follows:

-> Cboot

'.' = Clear field; '-' = go to previous field; ^ D = quit

boot device: at0 **Enter**

processor number: 0 **Enter**

host name: server **enter**

file name: pbxd.net **Enter**

inet on ethernet (e): 192.168.16.254: FFFF0000 **Enter the new IP address + Enter**

inet on backplane (b): **Enter**

host inet (h): 192.168.16.50 **Enter**

gateway inet (g): 192.168.16.1 **Enter**

user (u): pbxe **Enter**

ftp password (pw) (blank = use rsh): nice **Enter**

flags (f): 0x20 **Enter**

target name (tn): d **Enter**

startup script (s): **Enter**

other (o): **Enter**

DeviceID: 0x0 **Enter**

Instructions:

In the current row directly type the new value, press enter to change, and then move to the next parameter.

Enter ".", Then delete the current content.

Enter "-" and return to the previous row to make changes.

Enter "Ctrl + D", exit changes.

directly press enter, then move to the next one.

IP address format is still **IP: subnet mask,** for example the IP address need to be changed to 10.1.123.145, subnet mask as 255.255.254.0, then need to type the value as: **10.1.123.145: FFFFFE00**

Note that the modification will be effect after re-start up.

B) ifconfig

Use ifconfig to set IP address can be effective immidiately. Examples are as follows

-> Ifconfig "192.168.16.105: FFFF0000"

ip set 192.168.16.105: ffff0000 ok

The example set IP address "192.168.16.105", the subnet mask for the hexadecimal form

converted to decimal as "255.255.0.0". ok means modification has been finished

Note: This method modify the IP to take effect immediately, but don't save, even after reboot take boot parameter.

Chapter 5. Software configuration

5.1 tools

Run the tools of PbxConfig.exe，the tools looked as below:
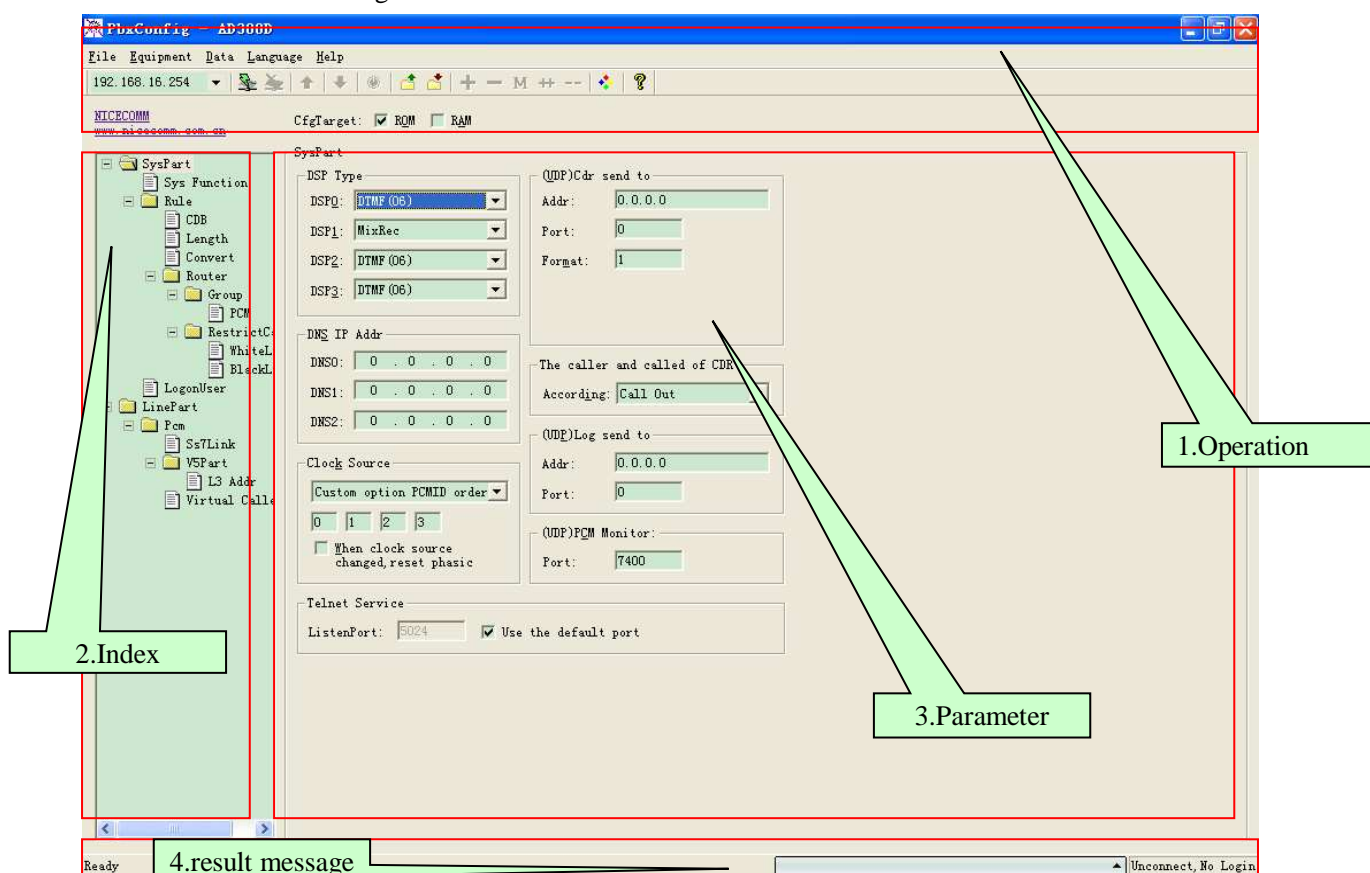
Interface divided into four areas,

1. Equipment operation, including menus and toolbars.

2. Parameter index is the device operating parameters of a classified index.

3. Parameters value displays the current parameters of the index of specific parameters.

www.nicecomm.com.cn   www.niceuc.com
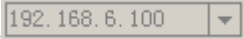
4. Message showing relevant operational status and results

5.1.1 Connect device

First, fill in the correct **device IP** address, and then click Button or in the **"Device"** menu, select **"Connect."** If the connection is successful, IP address bar will turn into gray, such as

`192.168.16.28`, At the same time, the status bar will show "Connect".

5.1.2 Disconnect

Click Button or in the **"Device"** menu, select **"Disconnect."** If successful disconnect, IP address bar will restore inputable, such as `192.168.6.100`, At the same time, the status displays "Not Connected."

5.1.3 Read device parameters

After a successful connection, point Button or in the **"Device"** menu, select **"read."** Will be prompted to enter a user name and password
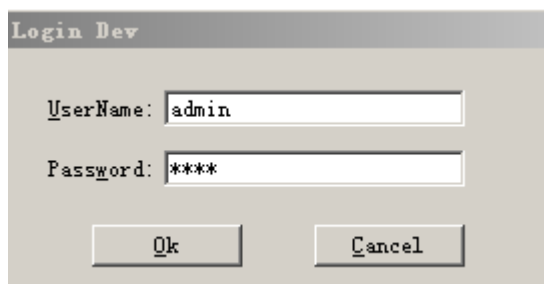
The default user name admin, password is nice

If the parameter was successfully read, read out all parameters will be prompted to complete.

For this operation, you need to pay attention **"to read and write target"** option. **ROM** is like

a computer's hard drive, **RAM** is the computer flash memory, can only choose one of them.

5.1.4 Write device parameters

After a successful connection, point ⬇Button or in the **"Device"** menu, select **"Write."** If you write to the success of all the parameters will be prompted to write to finish.

Write operations, you need to pay attention **"to read and write target"** option. Write **ROM** data is not lost after power-down, write **RAM** data will be lost after power-down, but some parameters can take effect immediately (without restarting equipment with immediate effect). also proposes to select the ROM and RAM in the same time for write operation.。

5.1.5 Load Parameters

Device parameters can be saved as a text file form. The text file can be loaded into the device, commonly used to restore the backup configuration. Point 📁Button or in the **"File"** menu, select **"Import."**

Note that the import operation is just the parameters loaded into the buffer configuration tool,and not written to the device.

5.1.6 Export Parameters

Device parameters can be saved as a text file. This is mainly for the back up the configuration of the devices. Click 📁Button or in the **"File"** menu, select **"Export."**

Note, remember to read the the device configuration before do the export action.

5.1.7 Reset Device

www.nicecomm.com.cn   www.niceuc.com

Click ⏻ Button or in the "Device" menu, select "Reset", the equipment can be reset.

When modify parameters, it is recommended to read out the parameters of the device and import to back up first, and try to back up for each modification to avoid mistake and can not be recovered.

5.2 Operation configuration

5.2.1 DSP function

DSP function is the essential function of the device must be properly set up, In the left side of configuration tool click"system parameters" index, and modify the parameters in the right side.
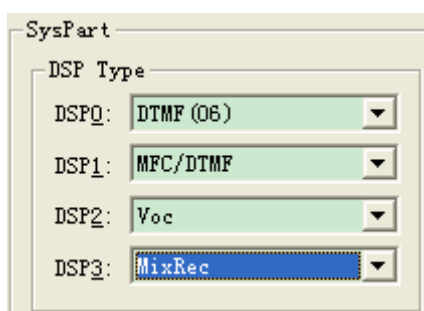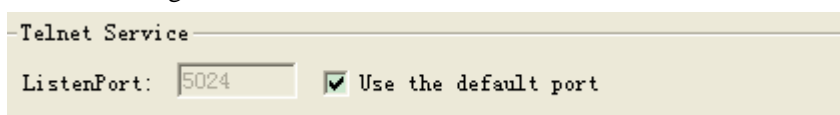

AD300D have four DSP, usually according above of the configuration

Note: Using CAS,you should config "MFC/DTMF" and "DTMF(06)"

After completion of editing, write to ROM and restart the device to take effect.

5.2.2 Telnet service

In the left side of configuration tool, pleas click"system parameters" index, and modify the parameters in the right side


Here can modify telnet listenport

After completion of editing, write to ROM and restart the device to take effect.

5.2.3 Login User

Specify the telnet connection and configuration tool for certified users, up to 10 users set up.

Choose "Loginuser" in parameter index area,and you can find there is loginuser list in the right side. Using "data" menu,toolbar or right menu to do add and delete operation.
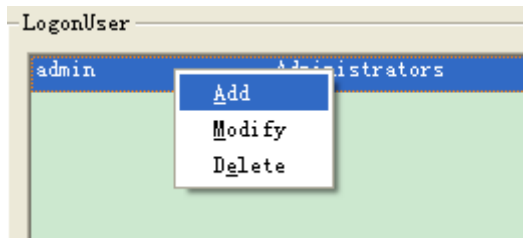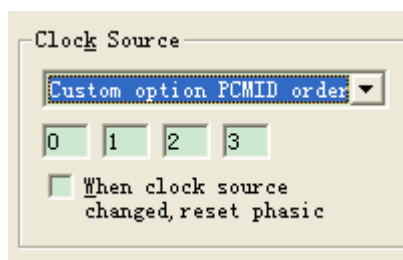

After completion of editing, write to ROM and RAM . restart the device to take effect.

5.2.4 E1 Configuration

If you need to use E1 lines, then the configuration of E1 is necessary. E1 transmission is synchronized signals, using the call signaling control.

5.2.4.1 Clock Source

E1 clock synchronization signal needs to be unity for working properly. AD300D itself does not provide the clock source, but it can get the clock from other side through E1.you can click "system parameters " index ,and modify E1 clock source on the right parameter area.

Tips: Usually get the clock source through PCM0

www.nicecomm.com.cn   www.niceuc.com

After completion of editing, write to ROM and restart the device to take effect.

5.2.4.2 PCM property

Set the relevant properties of PCM. In the INDEX area select the "PCM", Pamameter area shows as below:

PcmID	Impedance	PcmMode	Framing Mothed	CRC4	SignalingType	SignalingParticular
0	75 ohm	E1	Super Frame	Disable	SS7	LinkID:1,CIC:255,Mask 255 TimeSlot
1	75 ohm	E1	Super Frame	Disable	ISDN PRI	NetSide,MfcValDelay:4000, Normal

PcmID, PCM's number, see the hardware description.

Line impedance, E1 lines using coaxial cable connection typically use two kinds of 120-ohm or 75 ohm impedance.*(if device interface is CC4 small head ,you can only us 75 ohm)*
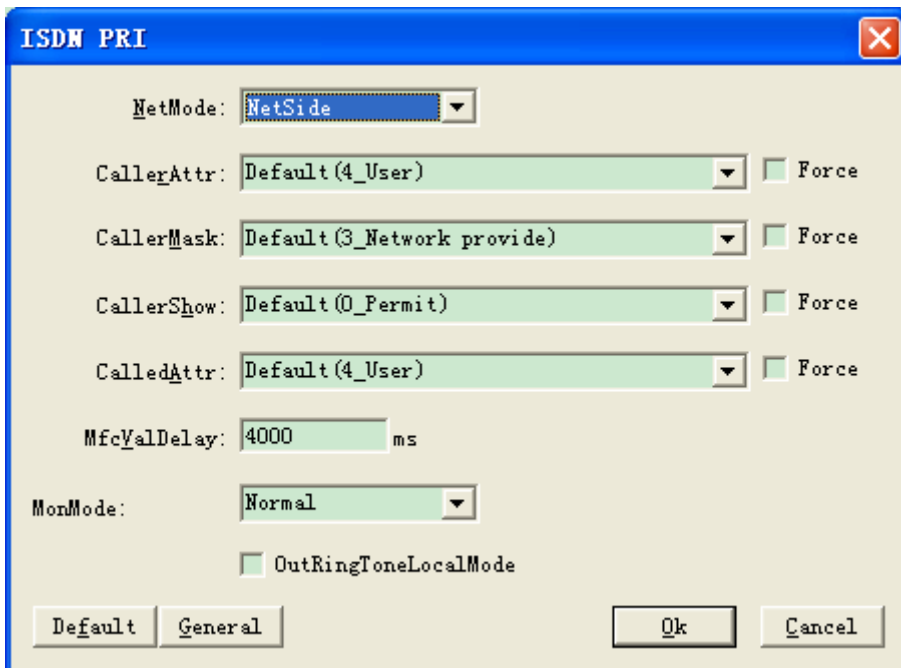
CRC4 check, physical frame of the 4-byte cyclic redundancy check. Normally enable.

Signaling type, set the signaling type of PCM. AD300D supports the following signaling.

A) **ISDN PRI,** or Primary Rate ISDN (Primary Rate Access), also known as Digital One (DSS1) signaling, the domestic usually 30 B channels plus one D channel (30B + D) approach.

B) **SS7 signaling,** SS7 signaling is a common international standard for common channel (Common Channel) signaling system, which uses a layered functional structure and message communication mechanism, the most suited for the use of modern digital communication network. Currently AD300D support TUP (Telephone User Part) and ISUP (ISDN User Part).

C) **V5.2,** to connect AN (Access Network) access network and the LE (Local Exchange) the local exchange network V-interface.

Signaling parameters:signaling related to the detailed parameters.

ISDN PRI signaling has the following parameters:

Network mode: two options, the network side or user side. can not be the same at both ends.

Calling attributes, caller screening, caller display, called attributes, set the number of properties, usually select the default value.

MfcVallDelay: When receiver number, if the number is passed by bit, will wait this value of ms(second) for next bit. If longer than this time but did not receive next bit, then the number receiving has been completed.

Usage pattern: usually choose "normal mode." "Signaling Collection" and "high-impedance recording" in and line monitoring of the use of high barrier from the need for external devices can be collected signaling, monitoring recording.

When the check the **"ring-back does not pass through"**, the device will provide their own ring back tone, rather than pass through the next level.

On the SS7 signaling parameters are as follows:

Link ID, the Link ID in this PCM , see description of SS7 link in later chapter, SS7 link should be added before configuration the SS7 parameters.
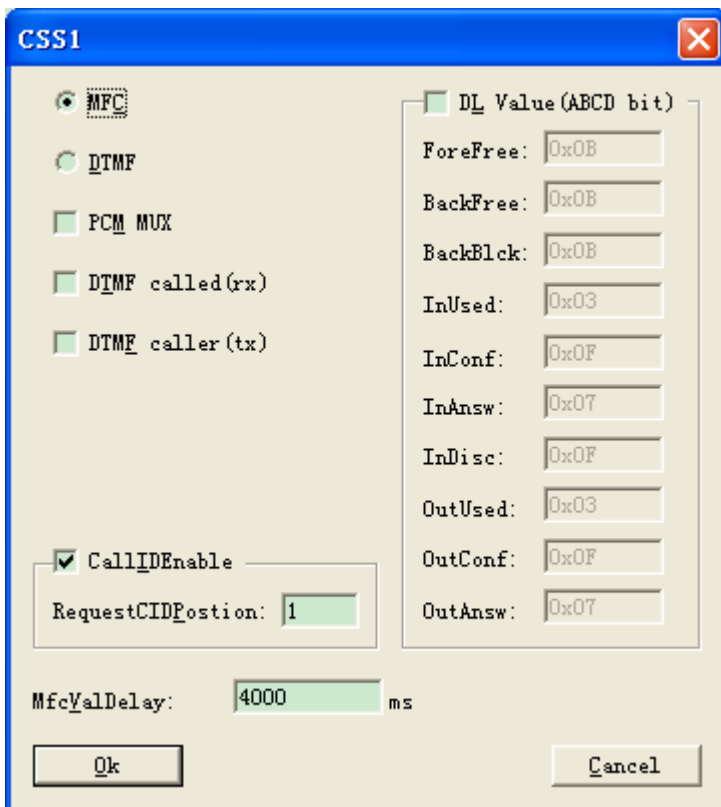
CIC, the time slot number in each E1, This CIC number is the number of E1, number oftime slot in this E1 will be automaticly increased. For example, CIC set to 0, then time slot 0-31 in this E1 will

be from 0 to 31; if the CIC set to 1, then the time slot 0-31 in this E1will be numbered from 32 to63
If the CIC set 2, then the time slot 0-31 in this E1 will be numbered from 64-95; and so on.

MaskTimeSlot: will mask this timeslot to be non-exist.

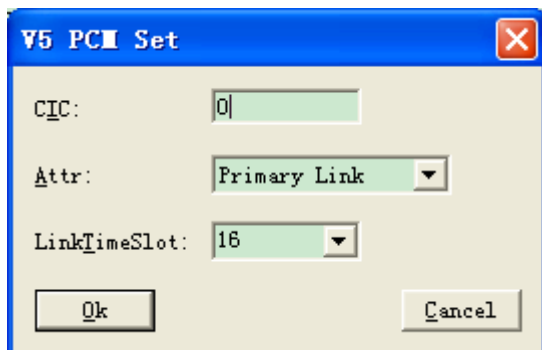**On the CSS1 sigaling parameters are as shows:**

Device support MFC and DTMF two kinds of hair yards way. PCM multiplexing for digital-analog conversion, the time slot channel line-one correspondence with the module, which is equivalent analog line extension through E1. The default settings are usually able to successfully connect, if client requests are special, according to manually specify the DL value.

V5.2 signaling parameters are as follows:

CIC: identity V5 within the PCM-link a logical sequence of numbers, both sides must be consistent.

Attr: to specify the primary link, 2nd link or no link.

Link time slot: designated which time slot is C-channel. When you select no link, unused slots can be blocked.
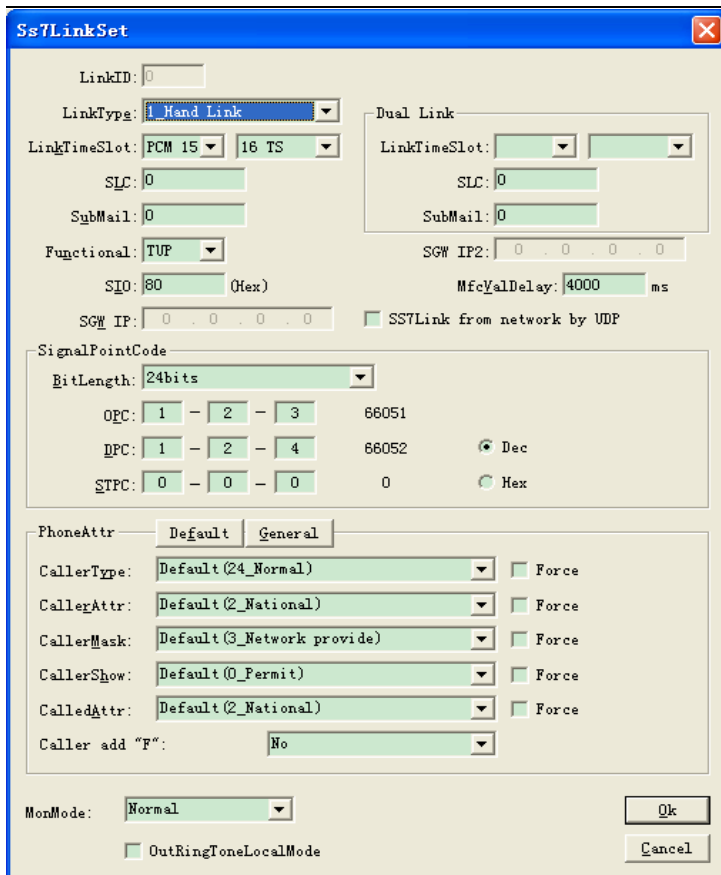
After completion of editing, write to ROM, restart the device for effective.

5.2.4.3 SS7 Signaling

For use of signaling SS7, you must first add the link parameter. In Index area select SS7 signaling, right click mouse button to add a new SS7 link in Parameter area.

This Can also be done in the "Data" menu, select "Add", or click ✚ on the toolbar Button to add a link. Once installed, then modify the parameters one by one.

LinkID	SLC	ServiceType	LinkType	LinkTimeSlot	SignalingPointCodeBits	OPC	DPC
0	0	TUP	1_Hand Link	PCM 0 16TS	24bits	001-002-003	001-002-00
1	0	TUP	2_NetClient	PCM 1 16TS	24bits	001-002-003	001-002-00
2	0	TUP	3_NetServer	PCM 2 16TS	24bits	001-002-003	001-002-00
3	0	TUP	1_Hand Link	PCM 3 16TS	24bits	001-002-003	001-002-00
4	0	TUP	1_Hand Link	PCM 4 16TS	24bits	001-002-003	001-002-00
5	0	TUP	1_Hand Link	PCM 5 16TS	24bits	001-002-003	001-002-00
6	0	TUP	1_Hand Link	PCM 6 16TS	24bits	001-002-003	001-002-00
7	0	TUP	1_Hand Link	PCM 7 16TS	24bits	001-002-003	001-002-00
8	0	TUP	1_Hand Link		24bits	001-002-003	001-002-00
9	0	TUP	1_Hand Link		24bits	001-002-003	001-002-00
10	0	TUP	1_Hand Link		24bits	001-002-003	001-002-00
11	0	TUP	1_Hand Link	PCM11 16TS	24bits	001-002-003	001-002-00
12	0	TUP	1_Hand Link	PCM12 16TS	24bits	001-002-003	001-002-00
13	0	TUP	1_Hand Link	PCM13 16TS	24bits	001-002-003	001-002-00
14	0	TUP	1_Hand Link	PCM14 16TS	24bits	001-002-003	001-002-00

Add
Delete
Modify

Link ID, Internal index number for SS7.

Link Code (SLC), the logical link number, must be consistent with the SS7 equipment on other side. Click to Edit.

Business types, currently supports two kinds of **TUP** and **ISUP.** Click to select.

Connection method, specify the link where to connect. Click to select.

   No, that there is no link connection, this link is invalid.

   Hand Link, the link is from E1.

   Netclient, get ss7 link from SWGIP

   NetServer, forward SS7 link data through Ethernet (service side).

   NetworkServerAndClient, including "NetClient" and "netserver" for cascading multiple devices

   SGW, connection from the PCM link, and transfer it to network for secondary development.

Link time slot, which time slots have the SS7 link.

Signaling point code-bit length, specify the length of the signaling point codes. Usually 24-bit for domestic and international use 14-bit.

Signaling point code, SS7 signaling code, in the format XXX-XXX-XXX.

Backup link slot, If use 2 SS7 link to back each other, time slot for the back SS7 link.(load sharing).

Caller category, caller attributes, caller screening, caller display, called attributes, specify the number of attributes called the primary, usually select the default value.

MfcValdelay, if calling number is received by-bit, over this time the receiving will be finished.

Usage pattern: usually choose "normal mode." "Signaling Collection" and "high-impedance
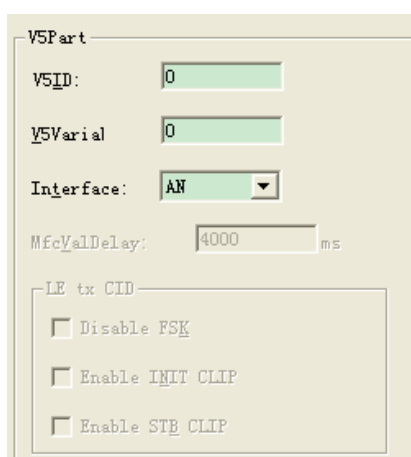
recording" in and line monitoring of the   use of high barrier from the need for external devices can be collected signaling, monitoring recording.

When the check the "ring-back does not pass through", the device will provide their own ring back tone, rather than pass through the next level.

After completion of editing, write to ROM, restart the device for effective.

5.2.4.4 V5.2 signaling

When using V5.2 signaling, the need to set the link parameters of V5. AD300D maximum support

One dirction , two links. Goes to "V5.2 signaling" and see belowparameters.

V5 variable and V5ID are the main parameters that must be consistent with the other side.

Interface type, designated as the AN side AD300D or LE side.

Access network AN is an abbreviation from the Service Node Interface (SNI) and the associated user-network interface (UNI) between the number of transmission entities (such as the line facilities and transmission facilities), is for the supply of telecommunications services to provide the necessary carrying capacity the implementation of the system. An AN can be reused, exchange connectivity and transport functional components.

LE is a local switch acronym, it's a subscriber line through the AN terminating switches.

After completion of editing, write to ROM, restart the device for effective.

L3 address, is EFaddr types of PSTN signaling or control protocol message in the third layer of the address. The aim is for the user port or public control functions provide a unique reference. Goes

to "L3 address" see below L3 address table.

One Phone number is corresponding to one address. In the "Phone Number" column on the right-click pop-up menu can be "incremental", "decreasing" or "Batch Edit" number of the table.

After completion of editing, writing to ROM and RAM, can be effective immediately.

5.2.5 Call control

First need to group the same type of interface, as shown below:

Order	LineType	LineRange (Sta...	LineRange (E...	LengthRuleID	ConvertRuleID (In)
0	Trunk	0	32	0	255
1	SlcFXS	0	65535	0	255
2	SlcFXO	0	4	0	255

Right click in the table, pop-up action menu, can add and delete. User Can also goes to "Data"

menu operation. Or use the toolbar Button **+ − M ++ --** operation.

Once added, first select the "Line Type", then select line range (Note that the end value of LineRange is excluded), at last select the rules for these LineType.

Rules including Length rules, number conversion rules and routing rules. Number conversion rule can be applied to call in and call out. Each rule table can define multiple groups, each group there are multiple rules.

Note that the call in and call out is base on the AD300D itself

5.2.5.1 Length Rules

When the AD300D is receiving the caller ID, we need to determine the length of each number. In Index aera , select "SysPart->Rule->Length" will see the length table in the right, Use "Data" menu or

toolbar, or right-click menu, to add the length table.

LengthRule

RuleID	Grade	SID	ThisLength	MinLength	MaxLength	FindingResult
0	0	**		4	20	Finded, End
0	0	*8		2	0	Finded, End
0	0	*90		5	0	Finded, End
0	0	?	0	1		Continue to find, Next length:8
0	1	17909	5	0		Continue to find, Length unknow
0	2	0755	4	3		Continue to find, Next length:7
0	0		0	0		Continue to find, Length unknow

The highest of number, matching conditions, "x" means NULL,none of the number can be matched, "?" is wildcard, it means any number.

Length rule to serach the caller ID by devided it into sereral parts, maixma 8 parts. Fisrt to match it with the smallest grade, if the "FindingResult" is "Finded, End", then the search stop, otherwise, to subtract ThisLength for alreading found, and continue searching for next part. If you can not find match for the next part, then number will be the "default length of the follow-up," or serch failed if this value not be set.

See figure above configuration, for example, in RuleID 0, when called number is 17909075526520000 then search process is as follows: First, check rules in grade 0, SID = ? (SID =surfix of caller ID), ? = all numbers), "The length" is 0, and FindResult is Continued to Find, Next Length = 8, then keep searching in grade 1, in grade 1 there is a rule SID = 17909, match with this caller ID, "ThisLength" = 5, and FindingResult is "Continue to Find, Length unknown", so thisLength will be cut, the number will change to 075526520000, and we keep searchingi n Grade 2, SID = 0755 to match with the number.

5.2.5.2 Convert Rule

Choose "number transform" in the parameters index area,you can find "number transform" list on the right side.use "data" menu,toolbar or click right menu to add and delete the table.

ConvertRule

RuleID	SID	CallerCutLength	CallerAddPrefix	CallerAddPostfix	CalledCutLength	CalledAddPrefix	CalledAddPostfix
1	*90	0			1		
1	**	0			2		
2	*0	0			2		
3	0	0			0	17909	

There are two determine the conditions,one is "Goup ID",the other is "CDB".

"CDB" is the beging part of the number,"?"is Wildcard.it means any number,"X" means NULL,when the Group number is grater than 128,it said that to determine caller ID. if the Group number is shorter than 128.it said that to dertimine called number.

> *Tips：When there are some "$"characters in prefix and suffiex. It means that inter original call and need signaling support.*

5.2.5.3 Routing Rule

In Index area, select "SysPart->Rules->router" to see the router table, Use "Data" menu or toolbar, or right-click menu, to add and delete the table.

The following for a detailed description of each parameter:

RuleID, specify which group belongs to the routing rules.

Priority, specify the priority of routing rules, will be related to the priority of analog circuit parameters in the SLC->Line Part table.

SID, the Prefix of the calling number. The conditions to make judgement.

Sequence, the action will be followed from the sequence small to large, so when the small sequence failed, route can goes to larger number sequence, thus can back up for multi routes.

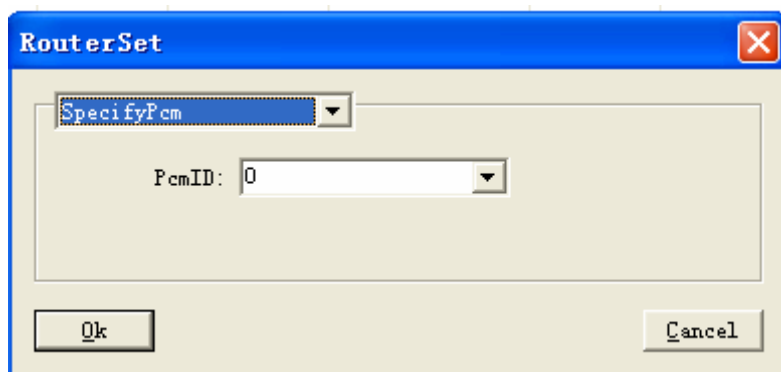**Action,** specify how to handle the call. There are several options below:

1. **Switch to digital trunk**

To forward calls to E1 trunking. The PCM time slot will be used for the call is decided by the selection in **description**. There are three options to choose from.
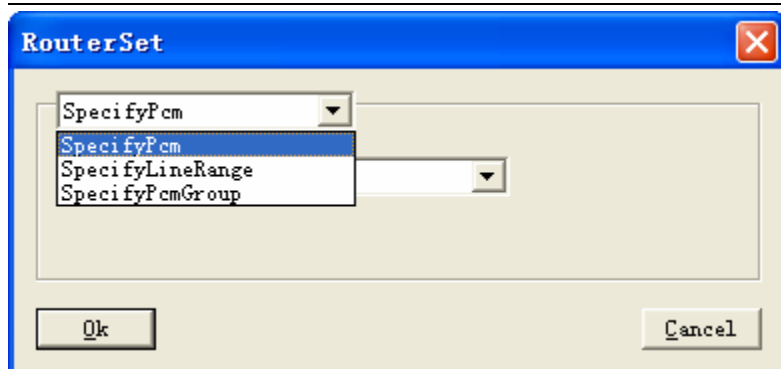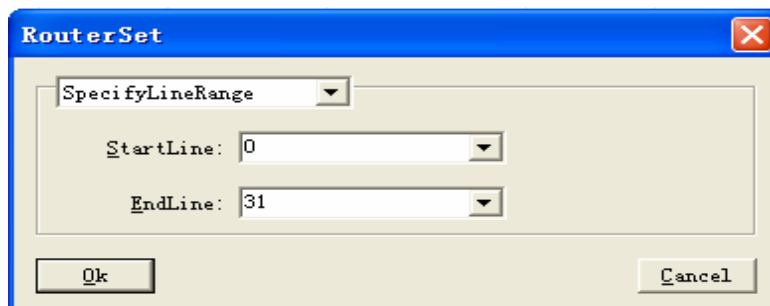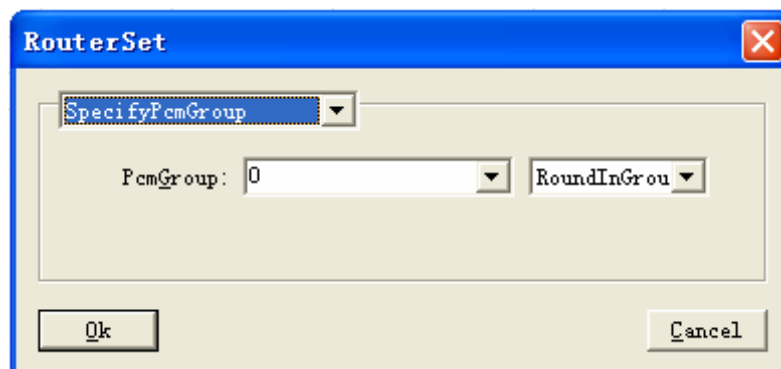
1)**Specify PCM,** as shown below:

PCM ID is the E1 that you want to select.

2) **specify Line Range,** as shown below:

Select PCM time slot from start to the end, note that for PCM0, the number of time slot is from 0 to 31, for PCM1 is from 32 to 63, and so on.

3, **specify the PCM group,** as shown below:

In the PCM group you can select round in group or sequence in the group,

RoundInGroup, each time when call in will select the timeslot one by one from beginning to the end.

SequenceInGroup, always selct the timeslot from the beginning for each time call in. only busy to select the next one.

Members of group will be configured in the "Route->Group-> PCM".

In the **Attr** column will configure the caller ID forward mode, bit-forward or one timeforward. When using FXS to call out, you can specify the outbound Caller ID use"extension number" or "Direct numbers."
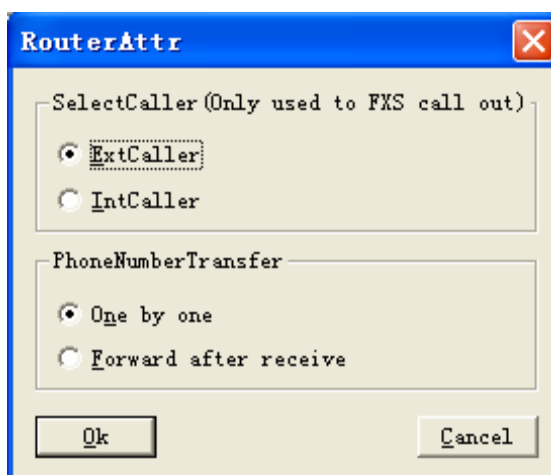

1) Auto attendant

AD300D provides a simple Auto attendant process. Including six response voice as below

NO.	Tip of the contents	Example
1	Welcome Tips	"Welcome to XXX company
2	Operation Tips	"Please dial extension Number,dial zero for help"
3	Busy Tips	"user is busy now
4	No answer Tips	"Nobody answer the call now
5	No number Tips	"The number you call doesn' t exist"
6	Dial extension failed Tips	"Please call later or change other numbers"

When a call comes in, the Auto attendant play the first voice, then plays the second, waiting for the user to press key, and then according to the key to play different voice. In column of description, click to pop-up dialog box for key operational definition.

www.nicecomm.com.cn   www.niceuc.com
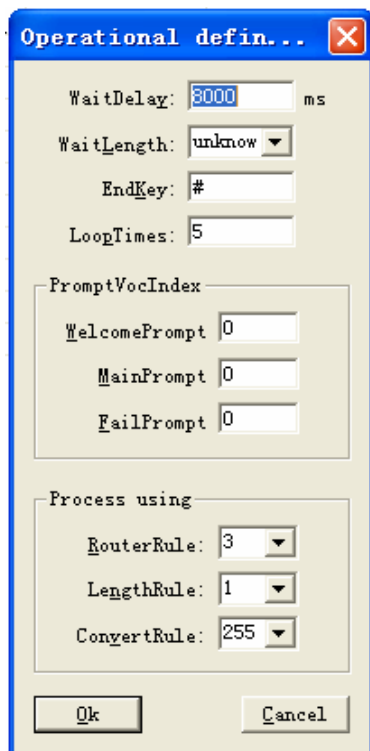
"WaitDelay" is used to set the timeout to receive the button, if more than this time no button pressed, will stop waitting.

"WaitLength", if set to "unknown", according to the definition in "Process using" to deal with; otherwise, according to the selection length to do treatment; proposals set to "unknown".

"End Key" to specify which key to press is the end of numbers, usually set to "#."

"LoopTimes" designated number of times the playback voice prompts. If more than this number, still no button pressed, then the call will be terminated.

"PromptVocIndex" designate the welcome prompt tune, main instruction tune and fail prompt tune voice index.if you fill out"0".use the default voice.

"Process using" designates the follow up call process after the selection key pressed

Tips:More than one route can be configured out of a simple nested   multi-level menus Process。


1) Secondary Dial-up

   play dial tone to prompt the user to re-dial.It is the same to the "turn computer operator" function, the only problem is that it playdial tone only one time,while "turn computer operator" can play back recorded voice. Routing content to set operational definitions, as follows:
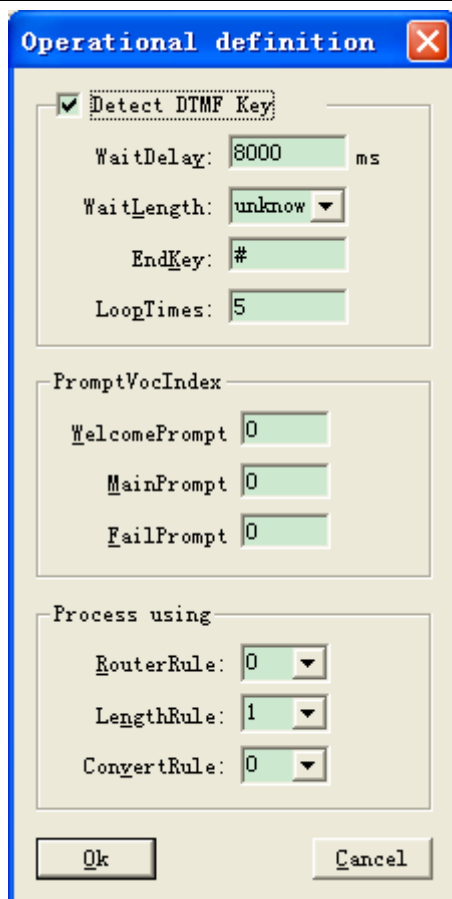
the parameter is the same with the "turn the computer operator" parameter.no more detaile description

2) CTI Control
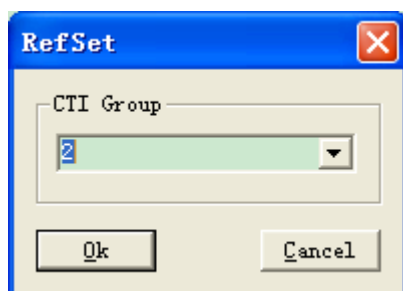
Calls can be transferred to the CTI program to control，CTI group parameters as a logo Parameter. It will be sent to the CTI program interface

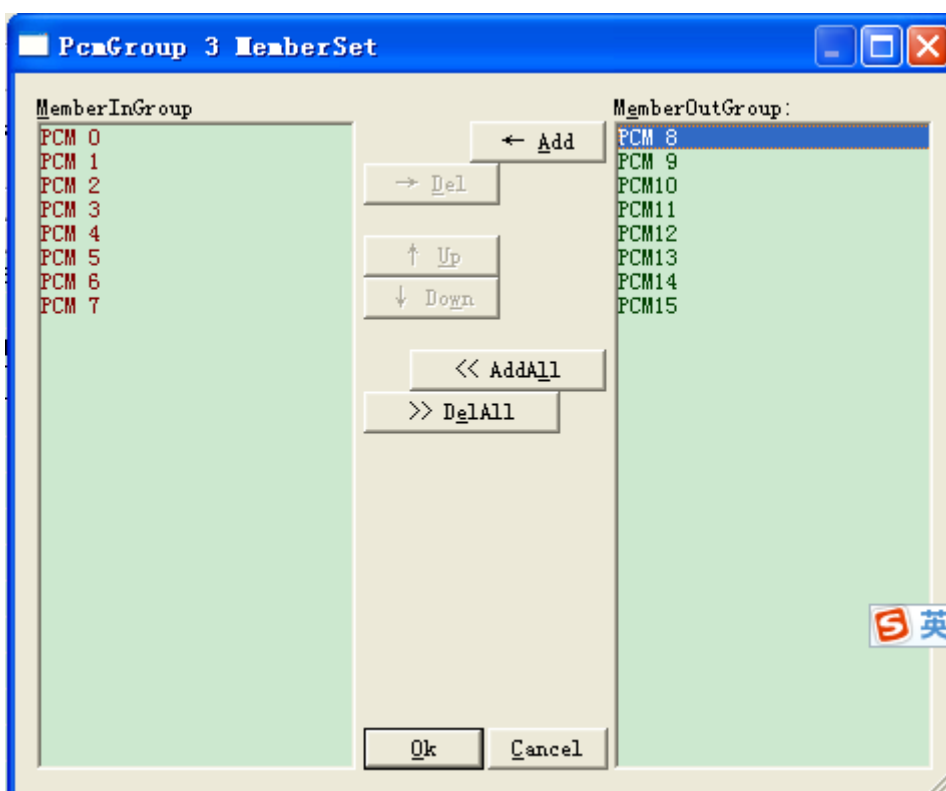### 3) SWitch to digital Trunk（Transmitted by the virtual caller）

The basic function is the same to "switch to digital trunk", But it will follow the virtual caller ID to select the channel line.

5.2.5.4 Groups

Goes to "SysPart->Rule->Router->group", you can set up groups for PCM

PCM group, set the PCM of the grouping.

Instructions: Group number is fixed, only need to add the lines or timeslot in that group.

5.2.5.5 Restrict caller

Device can restrict route through with the number of in-bound, in the fllowing of the "syspart—>Rule—>routerrule—>restrict " .there are two table :whitlist and blacklist,the number of the blacklist are not allowed ,and the oppiste is to the whitelist. Device maxium support 320 black and 320 white list.

Click right menu to operation,as fllowing:

Each number can be grouped up to 10 groups,after add numbers,you can use the routing specified on the group number

As fllowing:

After completion of editing, write to ROM, restart the device for effective.

5.2.5.6 CDB(Special SID)

When you need to select a large number of SID, that you can use CDB.

On the left side of configuration tool and Click "system parameter—>Rule—>CDB" index , and you can increase number on the right side of "CDB" table.

Every number correspondence a group number,and you can not only increase single,but also batch. Click right menu operation,to support load numbers from the files.

After add CDB numbers, you can reference them in the routing and convert rule tables.

As frist , you must add a virtual rule that SID format is "cdb,xx" ,xx means character length, If you want to match that figure above 8-bit word length of crown number,and then add the actual number.

When device are searching crown number, if there have vitural rules, then it will

After completion of editing, write to ROM and RAM   for effective.

5.2.5.7 Virtual caller

Device provide a group virtual caller number, it can be used for in-bound or out-bound, at frist.you can set some number at the "virtual caller" table,as fllows:

it can support 2560 virtual caller number total,and the method of use can be set in "PCM"

click "Linepart—>PCM",and open "PCM table", you can choose "Application" list,then it shows

application set dialog, as fllows:

You can use virtual caller not only in-bound but also out-bound,only to check the corresponding,

There are four kinds of use methods:

FixTimeSlot: According Slot-Channel to corresponding the caller one by one.

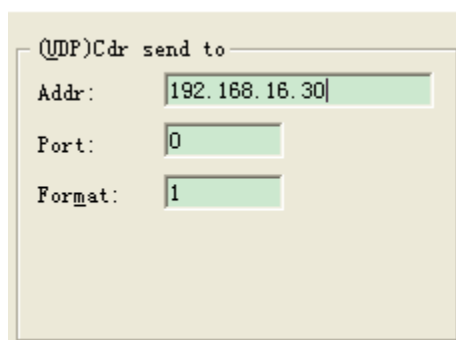Sequence: select number of turns in order in the whole virtual caller table

Random,select number by random method in the whole virtual caller table

TimeSlot Sequence，select number of turns in order in the whole virtual caller table ,and you

must corresponding Slot number.

Notes: After completion of editing, writing to ROM and RAM, can be effective immediately

Chapter 6 Calling detail records

AD300D send out the CDR through net port. For receiving CDR, other software need to run. For set up the destination of the CDR goes to "**SysPart**"

The original format of CDR is text strings, each one with "R" at the beginning and "\ r \ n" at the end. With a space between each text string separated by fixed length, if the text string is not long enough, will add the space to this fixed length, in the text string, there are four kinds of line types, 0 is E1,1 is analog line, 2 is VoIP lines, 3 is wireless lines. Call duration is seconds.

There are three formate of CDR**,** 1, 2 and 101 which are shown below:

Format 1											
String	logo		Outbound line type		Inbound line type		caller		Called number		Talk time	End
Length	1	1	1	1	1	1	15	1	20	1	5	2
Description	R	space		space		spae	Left	Space	Left	Space	right	"\r\n"
String Example: "R 0 1 88889010 98888 5"											
The sample indicated that calls from analog lines to digital trunking, calling number is 88889010, the called number is 98888, call duration is 5 seconds.											

Format 2										
String	logo		Out bound Line		In bound Line		caller		Called number	Talk time	End

www.nicecomm.com.cn   www.niceuc.com

			type		type							
Length	1	1	4	1	4	1	15	1	20	1	5	2
Description	C	Space		space		space	left	space	left	空格	right	"\r\n"
String Example : "C 0 1 1 18 88889010 98888 5"												

Outbound lines and incoming line length is 4, the first one is line type, the latter three is the line number.

The sample indicated that calls from analog lines number 18 to digital E1 timeslot 1, calling number is 8888 9010, the called number is 98888, and call duration is 5 seconds.

Format 101												
String	logo	Out bound line type		In bound line type		Out bound line NO.		Called number		Talk time		End
Length	1	1	1	1	1	1	15	1	20	1	5	2
Description	R	space		space		space	Left	Space	Left	Space	right	"\r\n"
String Example : "R 0 1 001 98888 5"												

The sample indicated that calls from analog lines to E1, the called number is 98888, call duration is 5 seconds.

Voice over UDP format is only an effective way.

If voice over TCP ，The format as fllows:

"\rCaaaa1,aaaa2,sssss,nnnnn,bbbb,cccc\n"

Beginning at" \r". as the identity Character "C"

aaaa means : line number

ssss means :end_calling time

nnnn means: talk_duration

bbbb means:caller

cccc means:called number

the end : a carriage return "\n"

when we using "wcdrrx",the format of CDR as fllows:

6.1 txt format

CDR field as fllows:

Caller,called number,starttime,endtime,talk_duration,in_channel,out_channel.

The format of time :

year-month-day,hour:miniute:second.the format of channel:PCMID.slot

6.2 Database format

Table name: cdr

Field Definitions:

    Id type：int(10) unsigned，Not null, automatically increase,the primary Key
    deviceid` type：smallint，Not null, default:0
    in_channel`type：int(11) ，Not null,default : 0
    out_channel`type：int(11) ，Not null, default :0
    incomingtime`type：datetime，Not null ,default : '0000-00-00 00:00:00'
    duration`type：int(10) unsigned，Not null ，default：0
    caller`type：varchar(30)，Not null，default:''
    called`type：varchar(30)，Not null，default:''
    fail`type：tinyint(4)，Not null，default :0

field means as follows:

    ID，deviceID，in_channel,out_channel,incomingtime,talk_duration，caller，called，fail

cdr.sql

Chapter 7. Debug monitor

7.1 Initialization Information

During device start-up there will be some initialization information, the information can be judged according to the device working condition. The following information is some commonly used example for reference purposes only.

Now link status is speed: 100, duplex: FullDuplex

This line is the net port initialization information, device start-up will automatically detect the speed of Ethernet, speed: 100 Mbps network, FullDuplex . If it is speed: 10, the network is 10 Mbps, If network is not connected, you can not do automatically detection. The default speed is set to 100 Mbps Network.

dsp[0] dtmf06 load ok!

dsp[1] metrec load ok!]

This is a DSP chip initialization information, the format is "dsp [number] function description, loaded situation." Number start from 0. Function including voice, dtmf mfc, metrec, conference, callerid and so on. If load successful then "load ok", or else (like add [80]: 0x0! = 0xf073) means load failed.

voc channels: 64

The number of voice processing resources available, one DSP has 64 channels.

voc read num: 6

number of automtic Voice response resources have been loaded, -1 indicated that there is no voice.

voc num: 6

voc [0] len: 17760

....

After the success of voice-loaded, display the total number and size of each audio file, in bytes.

The following is a list PCM signaling

pcm [0] ss7 link [0], ts = 16

pcm [1] ss7 link [1], ts = 16

ss7 [0] mailnum: 1 ch (1,32) start ...

ss7 [1] mailnum: 1 ch (33,64) start ...

Here is information on STUN

set stun server = [: 3478]

The following is CtiLnk development interface server startup information

CtiLnk enter ...

CtiLnk tcp server enter ... lnk: 0 recv err

CtiLnk listen ... lnk: 1 recv err

Here are the voice recording and playing server from network startup information

VocCmd enter ...

NetVocRx run ...

VocCmd tcp server enter ...

VocCmd listen ..

Here is information on the network configuration server startup

NetCfg tcp server enter ...

NetCfg listen ...

NetCfg accept ...

McuTimer task spawn

Here is information on PCM synchronization

pcm: 0 sync: 0x3

pcm: 1 sync: 0x3

If the PCM synchronization loss will appear pcm: X sync: 0x3 or pcm: X sync: 0x1, success will occur if the synchronization pcm: X sync: 0x0. Where X is the PCM number. If there pcm: X sync: 0x2, showing the alarming from opposite side.

7.2 Equipment Command

Common Command Description

Order	Parameters	Description
View basic information		
ver		Query the device software version
devinfo		Read device information
pboot		See basic setting
shsid		Read Equipment Serial Number
sgmtime		Show Time
ipconfig		Read IP address
ifconfig	The new IP address	Read and modify new address
	Modify sample "ifconfig "192.168.16.253:FFFFFF00""	
View resources		
LineGrpShow		View call control table
CvTableShow		View number convertion table
LenTableShow		View number length rule table
RtTableShow		View the routing rules table
PcmAppShow	PCM code	View PCM parameters
Ss7AppShow	Link ID	View SS7 link parameters
VocSrcShow		View voice resources
Operations command		
cboot		Modify basic setting
ldvoclib	FTP connection mode (0=active mode,1=passive mode)	Add speech database
ldboot	FTP connection mode (0=active mode,1=passive mode)	Update device Boot
ldapp	FTP connection (0=active mode,1=passive mode)	Update device software
chkapp	FTPconnection mode (0=active mode,1=passive mode)	Calibration device software
settime	Hours，minutes,seconds	Set time
setdate	Year，month，day，hour，minute，second	Set date and time
reset		Reset device
ChannelAlerting	Line type，line number ，model	Line reminder
ChannelAnswer	Line type，line number ，model	Line answer
ChannelReleaseBy	Line type，line number，called status	Release line
ChannelAttrPrn	Line type，line number	View detail property of lines
logNetEn		Enable the Ethernet port to send messages

logNetDis		Close net mouth send a message
logTerEn		Enable the serial port send a message
logTerDis		Close the serial port send a message
Debug		
monpcm	PCMID, switch (0 or 1)	Monitor PCM
monpcms	PCMID, number switch (0 or 1)	PCM volume control
monss7	LinkID, switch (0 or 1)	Monitoring on the SS7
monss7s	LinkID, the number of switches (0 or 1)	Volume control on the 7 th signaling
setlapp	Trace levels (0 ~ 7)	Global call tracking
setlhdlc	Trace levels (0 ~ 7)	Tracking HDLC imformation
setlpri	Trace levels (0 ~ 7)	Tracking PRI signaling
setlss7	Trace levels (0 ~ 7)	Tracking on the 7 th signaling
setlmtp2	Trace levels (0 ~ 7)	Signaling MTP2 part of the track on the 7th
setlusr	Trace levels (0 ~ 7)	Track analog line
setltab	Trace levels (0 ~ 7)	Tracking call control look-up table
setlex	Trace levels (0 ~ 7)	Tracking the exchange of operation
setlvoc	Trace levels (0 ~ 7)	Tracking voice operation
setlcdr	Trace levels (0 ~ 7)	Track,then send the case
ErrorCode	Mistake code	See the error code information
ErrorHelp		Show trace levels of the detailed description of

Note that all of the commands are case-sensitive.

7.3 calling trace

Using setlapp 7 command can track calling record .

7.4 E1 monitor

The small tools of NiceMonitor.exe is to monitor the E1 status of AD300D. Monitor use UDP network connections. In the configuration tool interface, the parameters of the index area, select "SysPart" in the right to see the UDP port.
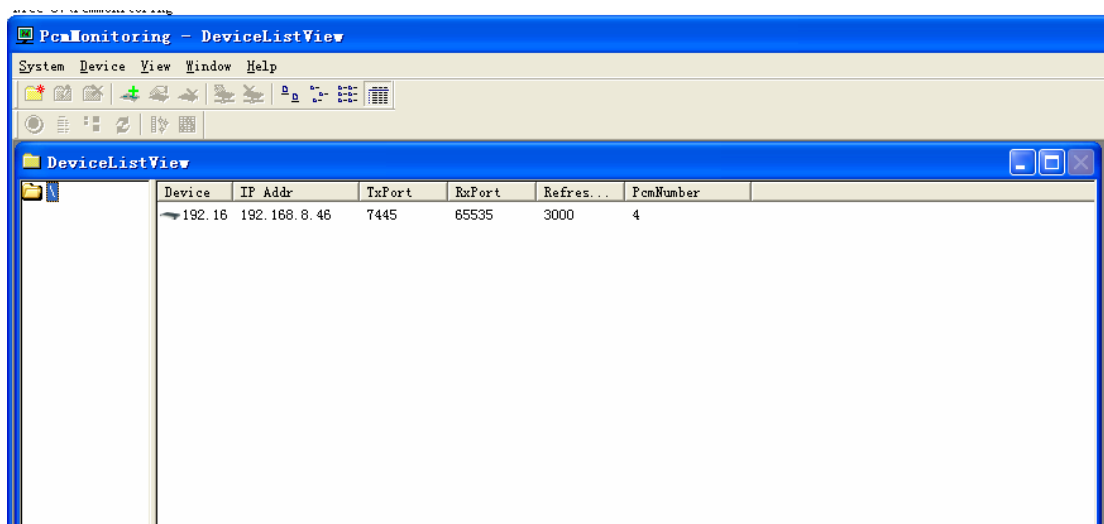
7400 is commonly used.

(UDP)PCM Monitor:

Port: 7400

Monitoring software interface is as follows:

NiceMonitor can monitor all of the equipment from Nice Communication which has E1 interfaces. multiple devices can be monitored, the port for each device must be set to different values.

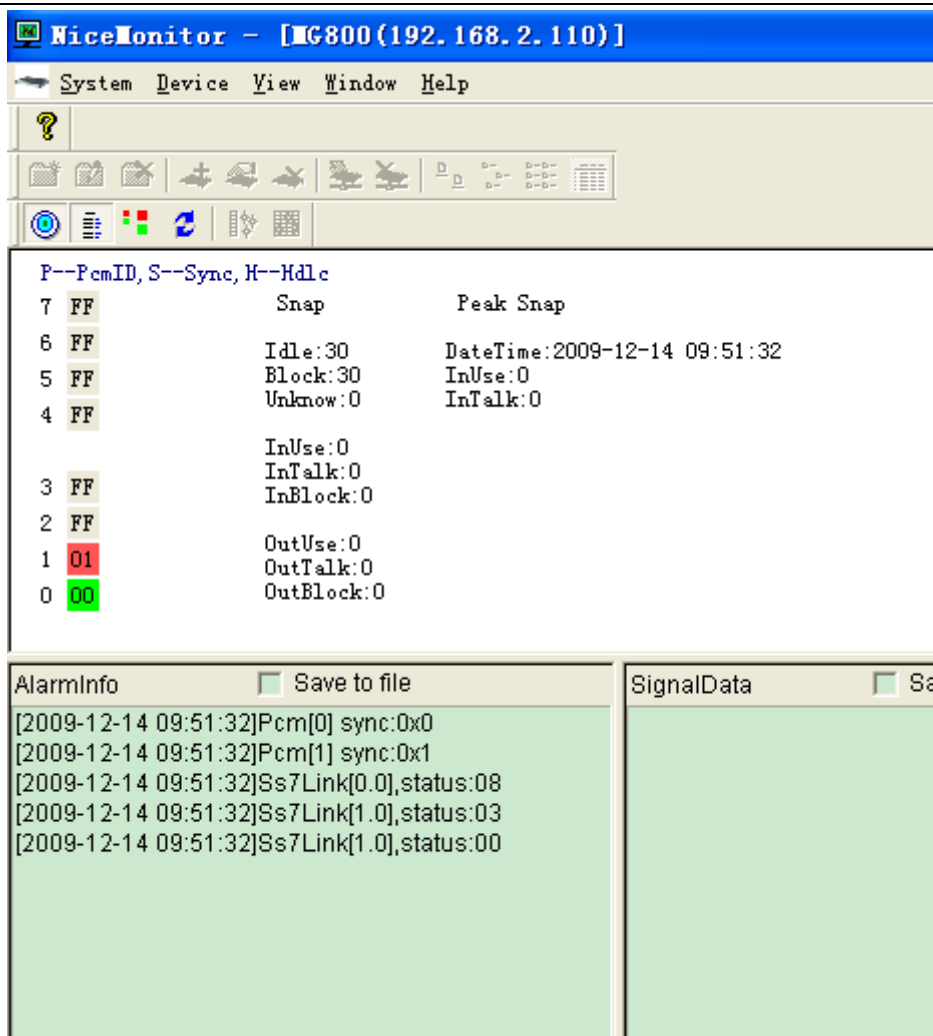Add your equipment, by click the shortcut of , input the parameter of this device:

After finished, double-click to open control device. As shown

www.nicecomm.com.cn   www.niceuc.com

Each E1 expressed by two square boxes, the red color means failure, the green color means normal. The left boxes indicate the physical synchronization signal. The right box indicate the HDLC link status. "Ss7Link" Here is the status of signaling links on SS7 signaling. Double-click the sync box (left), you can open the current E1 channel state table. Double-click the link box (right), you can open the link data tracking.
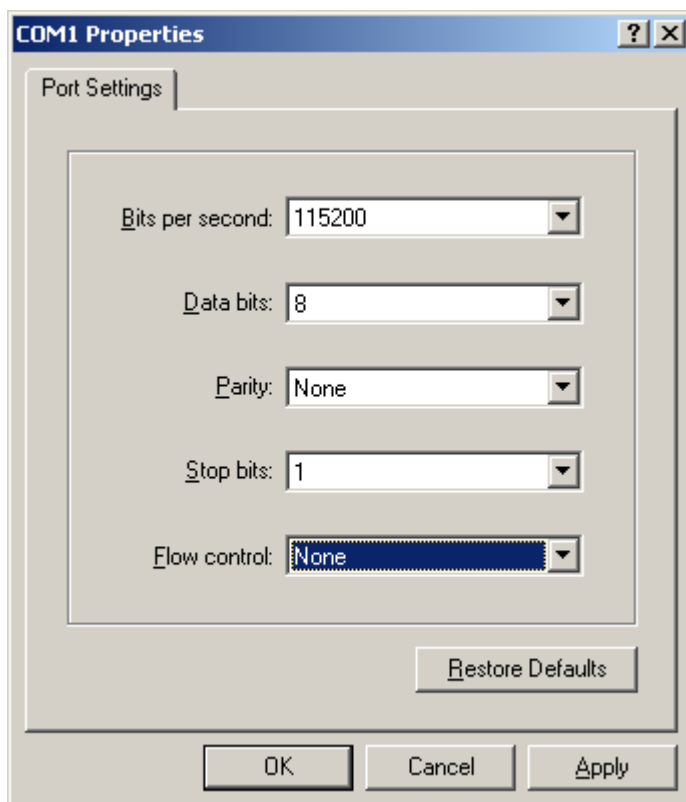
Appendix 1. The use of Hyper Terminal

Create a hyperterminal, click "Start -" program - "Accessories -" Communication - "Hyper Terminal" menu, pop-up "New Connection" wizard, fill in names as "HTCOM1-115200", then select one your favorite icon.
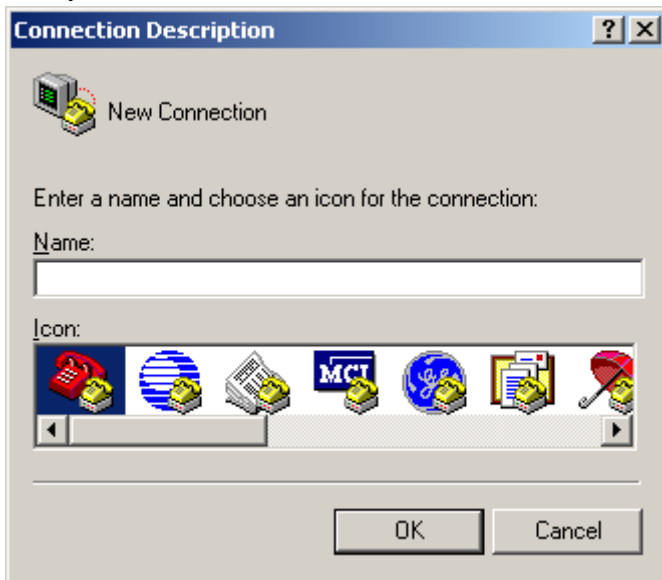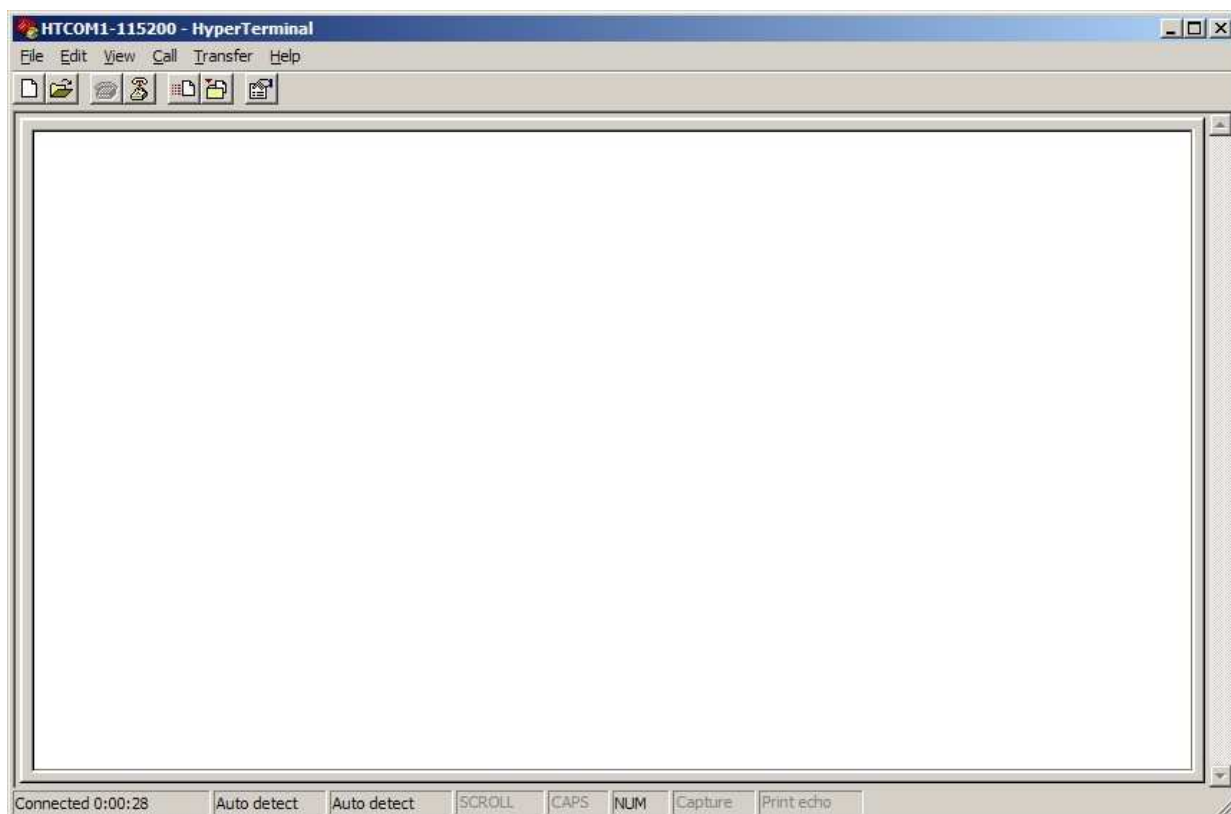

Click "OK", a dialog box appears as follows：

Select the connected serial port, click "OK", pop-up properties interface of the Settings dialog

box.

Click "Restore Defaults", change the "bits per second" to 115200, then click "OK" appears below thewindow.

This has been established, you can save it to your desktop for easy use next time. Click "File -" Save As "menu can be saved to your desktop.

www.nicecomm.com.cn   www.niceuc.com

Appendix 2. To establish FTP services

FTP is a file transfer protocol, when the device to download a file from your computer to use. If the computer does not have FTP service program, you can use CD-ROM included with Wftpd32 software.

It is a small and easy to use FTP server program. After the interface is running as follows:
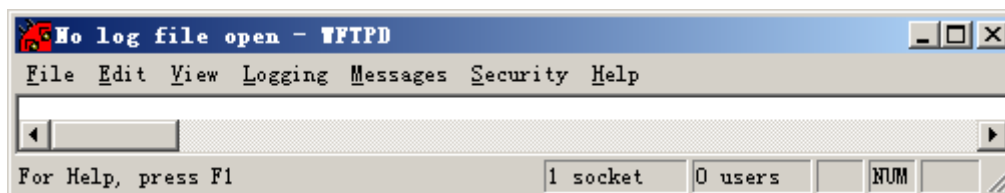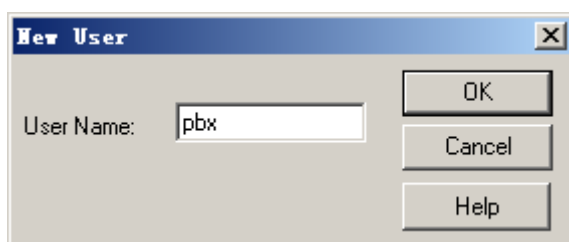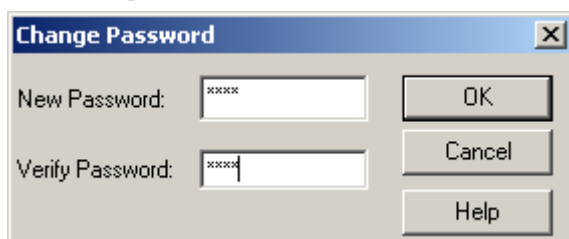
Next, create a new user:

Click "Security" menu, select "User / right ...", the following dialog box appears:
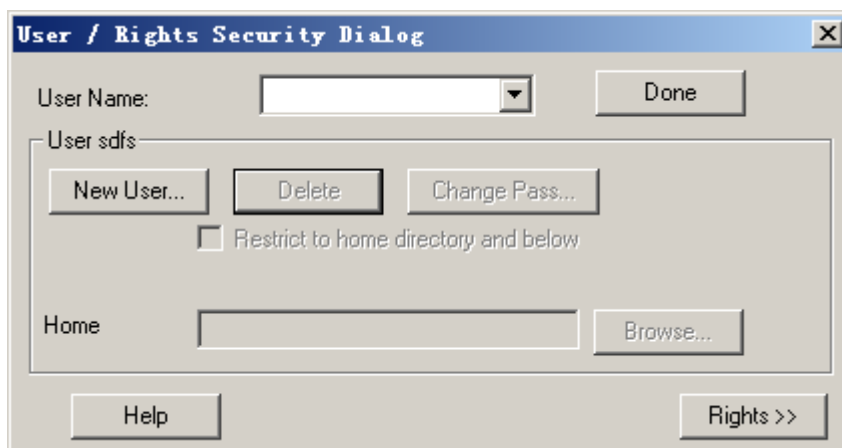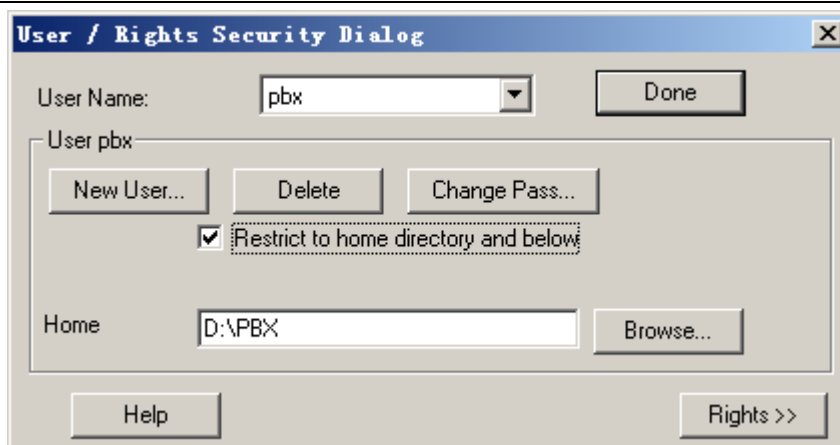
Click "New User ..." button, enter the user name, such as pbx, click "OK"

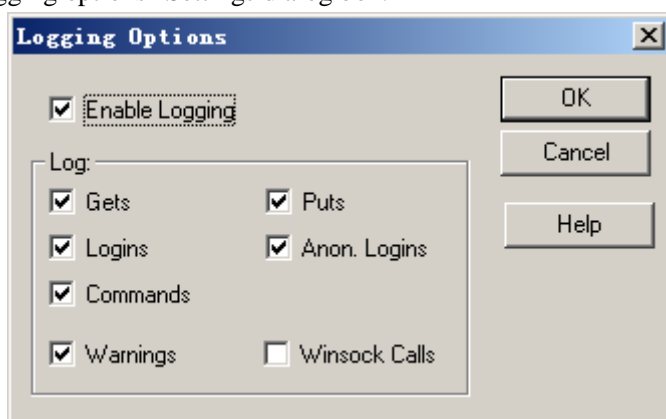To enter a password, such as nice, click "OK",

In the Home (FTP services in the root directory), followed by the edit box enter a path, such as "D: \Pbx", you can point "Browse ..." Browse to select the path.

Finally, click "Done" button to complete.

If you need to display the log, in the "Logging" menu, select "Log options", the pop-up "Logging options" Settings dialog box.
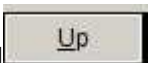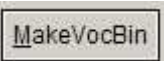

Check the appropriate option, click "OK".

Appendix 3. Recording tone and load to PBX

You can use the recording software (such as Windows system with a tape recorder) to record tone. Saved as a wav sound files, format must be used CCITT A-Law, 8kHz, 8 bit, mono, 7kb / sec. After recording finished, use NiceVocMake.exe for formate transfer.
Run NiceVocMake.exe, interface is as follows.
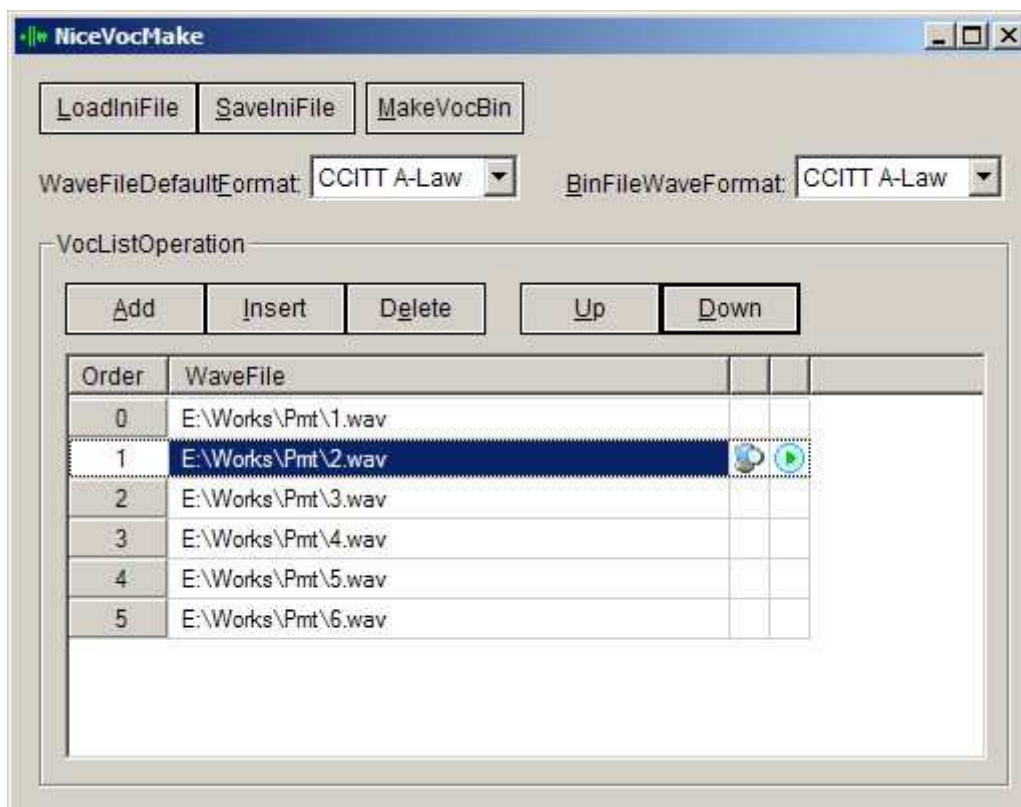
Click "[Add]" button, will add the recorded wav file, select the added item, click [▶]can play

the tone,and click [🌐] can re-select the file, and[Up] ,[Down]button can move the

positon of this tone up or down, Then click [MakeVocBin] , to save these tone file into the BIN file.

After the Bin file was made (usually 300evoc.bin), put it into the root directory of FTP accounts
In Running state of telnet, type the command: **dwvoclib**
Message show as follows:

```
Upload file of AD300D to FLASH!
```

Data in FLASH will be erased, continue? (Y/N) **Enter Y to continue, type N is cancel.**

HOST: server --->**here to enter the FTP host IP address. The default is server, which is the IP address in startup parameters.**

USER:pbx --->**here to enter the FTP account name.**default : pbx。

PASSWORD: nice--->**here to enter the FTP password,**default :nice.

FILENAME: voclib.bin--->**where the name of bin file to be load ..** default :voclib.bin。

Loading......

Received bytes: **number of bytes shown here updated.**

......

After loading is complete, restart the equipment to be effect.

Appendix 4. Equipment software upgrades

Note: Be careful about software upgrade ,improper operation will cause the device not work.

Start the FTP service, put the file will be upgraded (usually pbxd.bin) into the FTP root directory. in running state, input the command **ldapp** to upgrade.

Message show as follows:Upload file of AD300D to FLASH!

Data in FLASH will be erased, continue? (Y/N) **Enter Y to continue, type N is cancel.**

HOST: server --->**here to enter the FTP host IP address. The default is server IP address in startup parameters.**

USER:pbx --->**here to enter the FTP account name. The default is pbx.**

PASSWORD: nice--->**Here to enter the FTP password ,default :nice**

FILENAME: pbxd.bin---> **Enter to load the upgrade file name. The default is pbxd.bin。**

Loading......

Received bytes: **number of bytes shown here updated.**

......

After loading is complete successfully , restart the equipment to be effect.

In boot state, use command **"u"** to do upgrade.

In the [Boot]: prompt, enter **"u",** message show as follows:

```
boot device        : at
unit number        : 0
processor number   : 0
host name          : server
file name          : pbxd.net
inet on ethernet (e) : 192.168.16.155:ffff0000
host inet (h)      : 192.168.16.5
user (u)           : pbx
ftp password (pw)  : nice
flags (f)          : 0x20


Attached TCP/IP interface to at0.
No link, set speed:100, duplex:FullDuplex
No link, set speed:100, duplex:FullDuplex
Attaching network interface lo0... done.
Begin to Load pbxd.bin
```

And then use the **"x"** command to start device can be.

Note: When you upgrade from the boot state, must first set boot parameters correctly.

Appendix5.SS7signaling messages introduction

```
ACB (Access barred signal)
ACC (Automatic congestion control information message)
ACM (Address complete message (note))
```

Note:ACM including six kinds of signaling

ADC（Address-complete, charge）

ADN（Address-complete, no charge）

ADX（Address-complete, coin box）

AFC（Address-complete, charge subscriber free）

AFN（Address-complete, no charge, subscriber free）

AFX（Address-complete, coin box, subscriber free）

ADI（Address incomplete signal）

ANC（Answer signal, charge）

ANN（Answer signal, no charge）

ANU（Answer signal, unqualified）（Temporarily use）

BLA（Blocking-acknowledgement signal）

BLO Blocking signal）

BSM（Backward set-up message）

CBK（Clear-back signal）

CCF（Continuity-failure signal）

CCL（Calling party clear signal）

CCM（Circuit supervision message）

CCR（Continuity-check-request signal）

CFL（Call-failure signal）

CGC（Circuit-group-congestion signal）

CHG（Charging message）（Temporarily use）

CLF（Clear-forward signal）

CNM（Circuit network management message group）

COT（Continuity signal）

CSM（Call supervision message）

DPN（Digital path not provided signal）

EUM（Extended unsuccessful backward set-up information message）

FAM（Forward address message）

FOT（Forward-transfer signal）

FSM（Forward set-up message）

GRA（Circuit group reset-acknowledgement message）

GRM（Circuit group supervision messages）

GRQ（General request massage）

GRS（Circuit group reset message）

GSM（General forward set-up information message）

HBA（Hardware failure oriented group blocking-acknowledgement message）

HGB（Hardware failure oriented group blocking message）

HGU（Hardware failure oriented group unblocking message）

HUA（Hardware failure oriented group unblocking-acknowledgement message）

IAI（Initial address message with additional information）

IAM（Initial address message）

LOS（Line-out-of-service signal）

MAL（Malicious call identification signal）

MBA（Maintenance oriented group blocking-acknowledgement message）

MGB (Maintenance oriented group unblocking message)

MGU (Maintenance oriented group unblocking message)

MPM (Meter Pulse Message)

MUA (Maintenance oriented group unblocking-acknowledgement message)

NAM (National area message)

NCB (National call supervision message)

NNC (National-network-congestion signal)

NSB (National successful backward set-up message)

NUB (National unsuccessful backward set-up massage)

OPR (Operator signal)

RAN (Reanswer signal)

RLG (Release-guard signal)

RSC (Reset-circuit signal)

SAM (Subsequent address message)

SAO (Subsequent address message with one signal)

SBA (Software generated group blocking-acknowledgement message)

SBM (Successful backward set-up information message)

SEC (Switching-equipment-congestion signal)

SGB (Software generated group blocking message)

SGU (Software generated group unblocking message)

SLB (Subscriber Local busy signal)

SSB (Subscriber-busy signal (electrical))

SST (Send-special-information tone signal)

STB (Subscriber toll busy signal)

SUA (Software generated group unblocking-acknowledgement message)

UBA (Unblocking-acknowledgment message)

UBM (Unsuccessful backward set-up information message)

UNN (Unallocated-number signal)